

## **Subsurface BP Toxicity Summary for 6/14/10**

*Toxicity Results of Concern to the EPA Occurred for June 11 and 12 Samples ie High Mortatlity*

### **Region 6:**

#### **Brooks McCall General Summary**

- Since May 15, 2010, the Brooks McCall has visited 69 stations.
- A total of 206 samples were collected, at various depths, at 43 of the stations for toxicity testing.
- Of the 206 samples, the data was rejected for 7 of the samples because the % survival of the control samples were not  $\geq 90\%$ .
- The toxicity results for 38 of the samples have not yet been reported.
- Of the 161 samples that have been reported, significant mortality was found for 7 of the samples which were collected at stations BM77, BM 78, and BM 79.

#### **Ocean Veritas General Summary**

- A total of 35 stations have been visited by the Ocean Veritas since May 27, 2010.
- At 14 of those locations a total of 55 samples, from various depths, were collected for toxicity testing.
- Data from 14 of the toxicity samples have been rejected because the % survival of the control samples were not  $\geq 90\%$ .
- Toxicity data from three of the samples were not reported because rotifers were not available.
- Data for 9 of the toxicity samples have not yet been reported.
- Of the remaining 29 samples, no significant mortalities were reported.

### **Technical Issues Being Confronted:**

- The data for Total Petroleum Hydrocarbons (TPH) has not been reported. This lack of data prevents EPA from quantitatively evaluating the exposure concentrations of TPH (a relevant dose metric) relative to any apparent adverse effects on survival that were observed through the onboard Rototox (rotifer toxicity) testing of select samples.
- Numerous technical issues with regard to the rotifer toxicity test procedures have been brought to the attention of BP by EPA toxicologists. Key among these is that rotifer toxicity test control survival often did not meet performance criteria for test acceptability on both the Brooks McCall and Ocean Veritas.
- The longest interruptions to dispersant application (approx. 13 hours) occurred during a 24-hour period from June 11-12, 2010. This led to approximately half the volume of dispersant being applied at the subsurface during this period as compared to the two previous days.

### **Results, Preliminary Conclusions, and Path Forward**

- EPA and BP are currently discussing moving forward on alternative, laboratory-based test methods, including EPA Standard Methods for toxicity testing, that can provide useful decision-oriented data.
- The LISST data are not out of the ordinary for June 11 and 12. Therefore, the observed toxicity for Stations BM77, BM78, and BM79 are not apparently, or partially, explained by examination of the LISST pattern.

- Dissolved oxygen levels were relatively high (ranged 5.4 to 7.8 mg/L) at the depths where that samples exhibiting toxicity were taken. Therefore, the observed toxicity for Stations BM77, BM78, and BM79 are not apparently, or partially, explained by examination of the dissolved oxygen pattern.
- For the Stations that exhibited toxicity (BM77, BM78, and BM79), the usual pattern of fluorometric 'hits' at approximately 1100 m depth was observed. However, for other depths where toxicity was observed across these Stations (e.g., approximately 900 and 1400 m), no fluorescence indicators of a potential oil plume, or chemically dispersed oil plume, were observed. Therefore, the observed toxicity for Stations BM77, BM78, and BM79 are not apparently, or partially, explained by examination of the fluorometric pattern.
- The lower volume of dispersant applied over June 11-12 compared to previous days does not explain the toxicity observed at Stations BM77, BM78, and BM79. Toxicity was not observed in any other nearby Stations (i.e., within 2-km) that were sampled over this period.
- Overall, the cause of the limited observations of toxicity (i.e., at 3 of 8 Stations sampled from June 11-12, 2010) cannot be clearly deduced from the available data. A lack of exposure concentration data additionally limits EPA's ability to understand causality. Hence, the toxicity could just as likely have resulted due to random chance.